

## Press Information

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### PRESS RELEASE

## Lightweight Forging with 1,000 Lightweighting Ideas and 217 kg of Lightweighting Potential Closing Colloquium on 12 October 2018 in Düsseldorf

Hagen, 26.10.2018

**Almost 1,000 lightweighting suggestions for the chassis, powertrain, transmission and drive-specific electronic parts of a hybrid passenger car as well as for a truck powertrain have been developed. That is the result of an unprecedented international initiative consisting of companies from the steel and forging industries. The collaborative ideas relate to lightweighting achieved through materials, design and manufacturing as well as to conceptual lightweight design.**

Further reducing the weight of vehicles is one of the decisive challenges facing the automotive industry in the near future. This is because less weight results in lower CO<sub>2</sub> emissions thanks to reduced fuel consumption, as well as in improved material and resource efficiency, the possibility of higher payloads, an enhanced driving experience, increased safety and, last but not least, a crucial contribution to the environment. Thanks to its lightweight design qualities, modern steels will retain a central role in these developments. Since 2013, The Lightweight Forging Initiative, a cooperation of companies from the steel and forging industries, has been revealing the previously unknown lightweighting potential offered by forged steel parts in the powertrain and chassis.

Phase III, which has now been completed, consisted of 39 cooperation partners from Western Europe, the US and Japan. This third phase began in July 2017 with the disassembly and documentation of a hybrid split-axle four-wheel drive SUV. This work was carried out by the automotive research company fka Forschungsgesellschaft Kraftfahrwesen mbH, located in Aachen, Germany. Likewise, the transmission, drive shaft and rear axle of a heavy-duty commercial vehicle were disassembled. During a workshop at the end of January 2018 at the fka in Aachen, 80 experts from the companies involved in the project then had the opportunity to assess over 4,000 parts themselves and inspect them with regard to potential lightweighting measures.

The above-named systems in the hybrid passenger car have a reference mass of 816 kg. The lightweighting approaches developed during Phase III add up to a weight reduction of 93 kg in total for this vehicle. For the truck powertrain, with a reference mass of 909 kg, the experts were able to promise a total weight reduction of 124 kg in the transmission, drive shaft and rear axle.

The closing colloquium with the Initiative's cooperation partners took place on 12 October 2018 at the Stahl-Zentrum in Düsseldorf, Germany. Here, the most important results were presented. The Chairmen of the Initiative – Dr. Hans-Willi Raedt from the Hirschvogel Automotive Group representing the forging industry and Dr. Thomas Wurm from Georgsmarienhütte GmbH representing the steel industry – led the participants through the lecture program. These participants – all experts in steel materials and forging processes – also had plenty of opportunity for information exchange.

Intensive communication of the results will start in autumn. Representatives of the Initiative will hold presentations both nationally and internationally. In addition, the Initiative will be represented at trade fairs and featured in the national and international trade press. Furthermore, visitors to the Initiative's website – [www.lightweightforging.com](http://www.lightweightforging.com) – will find a new explanatory film with a running time of 2 minutes as well as a detailed presentation of the results from Phase III, outlining many lightweighting solutions.

Now the suppliers involved are faced with the task of communicating their proposed solutions to existing and potential customers and underlining the benefits of these solutions to developers, designers and buyers. “The Initiative would like to promote communication about lightweighting along the entire supply chain, from steel manufacture, forging and component manufacture through to automotive application, and to ensure that new lightweighting solutions based on forging find implementation,” explains Dr. Hans-Willi Raedt, Chairman of The Lightweight Forging Initiative for the forging partners.

Characters: 4,100



Dr.-Ing. Hans-Willi Raedt,  
Chairman of the Initiative and Vice President Advanced Engineering at the Hirschvogel Automotive Group



The lightweighting potential offered by forged steel parts in the powertrain and chassis that has been uncovered by the Initiative since 2013 in Phase I (passenger car, 42 kg), Phase II (light commercial vehicle, 99 kg) and Phase III (hybrid passenger car)

#### **The Lightweight Forging Initiative**

Since 2013, a total of 54 steel manufacturers, forging companies and an engineering service provider have joined forces under the auspices of the German Forging Association (Industrieverband Massivumformung e. V.) and the Steel Institute VDEh (Stahlinstitut VDEh) to form The Lightweight Forging Initiative. The goal of this Initiative, which is unparalleled worldwide, is to achieve weight-savings in cars and light commercial vehicles using innovative components made of steel. During Phase I, which took place in 2013 and 2014 with 24 participating companies, a medium-sized passenger car was analyzed and the lightweight design potential of forged components identified. In total, a weight-saving potential of 42 kg was achieved in the powertrain and chassis. The Initiative entered Phase II in 2015 and 2016 with 28 companies and focused this time on a light commercial vehicle up to 3.5 t. Phase II was able to build on the success of Phase I by identifying a feasible lightweight design potential of 99 kg in the powertrain and chassis. Phase III of the Initiative kicked off at international level in summer 2017 with 39 companies from the US, Japan and Western Europe. The focus of this phase is on the lightweighting potential in the powertrain and chassis of a hybrid passenger car as well as in the transmission of a conventional truck. Further information may be found at: [www.lightweightforging.com](http://www.lightweightforging.com).

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#### **Industrieverband Massivumformung e. V. (German Forging Association)**

Industrieverband Massivumformung e. V., with its 120 members, represents the interests of the industry with sales of 6.7 billion euros and almost 30,000 employees. A core task is organizing collaboration across the member companies, most of which are medium-sized businesses, with the aim of working together to increase the competitiveness of the individual firms. Germany is the technology leader when it comes to forging and, after China, is the world's largest producer of forged parts.

#### **Stahlinstitut VDEh (VDEh Steel Institute)**

The association promotes cooperation among engineers on projects of a technical and scientific nature, with the aim of further developing steel technology and the material steel. Stahlinstitut VDEh focuses in particular on collaborative research. Today, Stahlinstitut VDEh members include around 5,000 university graduates in technical, scientific and commercial subjects or those in leading positions in industry and trade. Besides this, 150 companies have joined the association from the areas of iron, steel and associated materials.